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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/711,859	11/12/2000	Mika Henrik Tuomi	BBOY-25.415	8594

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EXAMINER
AMINI, JAVID A

ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/711,859	TUOMI ET AL.	
	Examiner	Art Unit	
	Javid A Amini	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☒ Claim(s) *1-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 November 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claim 1-20 rejected under 35 U.S.C 102(e) as being anticipated by Stroyan US patent 6,429,877 B1, filled date of July 30, 1999.

2. Claim 1.

As for claim 1, "rendering the pixels and, during the step of rendering, determining if an edge pixel of a polygon is being rendered", Stroyan discloses and illustrates in (col. 8, lines 50-67) and Fig. 6, that is illustrating the top-level functional operation of a method for preserving color blending information, in accordance with one aspect of the present invention. In accordance with this method, a first step (step 202) may be to determine whether a 10 given pixel is an edge pixel (i.e., a pixel that borders a primitive edge). If not, then the pixel color may be directly written into the appropriate memory segment of the frame buffer (step 204). Thereafter, a coverage value of one (binary value "11111") may be written to the extra byte 162 of memory segment 160, corresponding to the current pixel (step 206). Thereafter, the method may proceed to the next pixel (step 208), and the foregoing steps may be repeated for each pixel of a

rasterization. If a given pixel is determined to be an edge pixel, then the method may determine the coverage area for the current pixel (step 210). In this regard, the coverage area is the percentage of the pixel (containing the center point) that lies within the edge of the primitive. "defining a sample point within each pixel and determining if the sample point lies within the polygon or outside of the polygon, and if the sample point lies within the polygon, setting the color of the edge pixel to the color of the polygon and, if the sample point lies outside of the polygon, setting the color of the edge pixel to the color of the background", Stroyan illustrates in Fig. 1A and 1B that shows a line 16, which is the true edge of cube 12. Surrounding this edge 16 are an array of pixels. Each pixel is represented with a center point, and an outer, circular rim. As illustrated, a number of pixels (illustrated in dashed line) have at least some portion that intersects the edge 16. These are also referred to as edge pixels. The remaining pixels will be assigned a solid color, corresponding to the color of the respective cube.

"calculating the percentage of the pixel that lies in the space associated with the sampling point", Stroyan illustrates in Figs. 1A-1D.Specifically, in reference to FIG. 1B,consider pixels 17, 18, 24, and 25.

"storing the color of the pixel in a frame buffer in association with the percent value that lies in the space associated with the sample point and in association with an indication that the sample point lies within the polygon or outside of the polygon", Stroyan discloses in abstract that a system is provided having frame buffer circuitry uniquely configured for rendering an antialiased graphics scene. In accordance with one embodiment, the frame buffer circuitry includes a first memory segment for storing color values associated with pixels, a second memory segment for storing alpha values associated with the pixels, a third memory segment

for storing depth values associated with the pixels, and a fourth memory segment for storing anti-alias blending information associated with the pixels.

"fetching the pixel information associated with a pixel to be output", the step is inherent because using antialiasing method.

"for an edge pixel, determining from the color indication associated with the pixel if the color associated with the pixel is associated with the background or with the color of the polygon", Stroyan illustrates in Fig. 1A-1D.

"if the pixel color is that of the polygon, blending the color of the pixel with the color of a neighboring pixel outside of the polygon in a percentage defined by the stored percentage such that the percentage of the stored color is equal to the stored percentage value and the percentage blended from the neighboring pixel is that associated with the percent of the pixel having been determined to lie outside of the polygon", Stroyan discloses in abstract.

"if the pixel is the color of the background, blending with the color of the pixel the color of a neighboring pixel in the polygon in a output display grid associated with the video processing step. Percentage that equals the color of the pixels multiplied by the percentage lying outside of the polygon and the color of the polygon multiplied by the neighboring pixel or polygon multiplied by the percentage of the pixel lying within the polygon", Stroyan teaches in (col. 2, lines 51-60) that anti-aliasing methods are generally classified into a super-sampling method and an area sampling method. In the super-sampling method, the color value of a pixel is calculated by obtaining the color values of several sub-pixels within the pixel and averaging (or blending) the obtained color values of the sub-pixels . In area sampling, the area of the polygon occupying a pixel is calculated and then the color value of the area ratio is calculated.

3. Claim 2.

As for claim 2, "in the step of defining the sample point, comprises defining the sample point as the top left corner of the pixel in the output display grid associated with the video processing step", the step is inherent because the sample point should start from somewhere of the pixel. The significant of top left corner of the pixel should specified.

4. Claim 3.

As for claim 3, "determining coverage parameters associated with an edge pixel on an edge of a polygon being rendered that is stored in a first buffer; creating an antialiasing value representing the relationship of the edge pixel to its surrounding neighbors as to the amount of color that is to be blended into the edge pixel of a color corresponding to that of its surrounding neighbors", Stroyan discloses and illustrates in (col. 8, lines 50-67) and Fig. 6, that is illustrating the top-level functional operation of a method for preserving color blending information, in accordance with one aspect of the present invention. In accordance with this method, a first step (step 202) may be to determine whether a 10 given pixel is an edge pixel (i.e., a pixel that borders a primitive edge). If not, then the pixel color may be directly written into the appropriate memory segment of the frame buffer (step 204). Thereafter, a coverage value of one (binary value "11111") may be written to the extra byte 162 of memory segment 160, corresponding to the current pixel (step 206). Thereafter, the method may proceed to the next pixel (step 208), and the foregoing steps may be repeated for each pixel of a rasterization. If a given pixel is determined to be an edge pixel, then the method may determine the coverage area for the current pixel (step 210). In this regard, the coverage area is the percentage of the pixel (containing the center point) that lies within the edge of the primitive.

"storing the antialiasing value in a second buffer in association with the edge pixel in the first buffer", Stroyan discloses in abstract that a system is provided having frame buffer circuitry uniquely configured for rendering an antialiased graphics scene. In accordance with one embodiment, the frame buffer circuitry includes a first memory segment for storing color values associated with pixels, a second memory segment for storing alpha values associated with the pixels, a third memory segment for storing depth values associated with the pixels, and a fourth memory segment for storing anti-alias blending information associated with the pixels.

5. Claim 4.

As for claim 4, " wherein the created antialiasing value is a single antialiasing value represented as a digital word", the step is inherent because all created value/s represented by digital word.

6. Claim 5.

As for claim 5, "wherein the step of creating the antialiasing value comprises the steps of: supersampling the edge pixel during rendering thereof to provide a plurality of subpixels, wherein each of the subpixels contains information as to coverage by the polygon", Stroyan discloses in (col. 2, lines 52-60) that anti-aliasing methods are generally classified into a super-sampling method and an area sampling method. In the super-sampling method, the color value of a pixel is calculated by obtaining the color values of several sub-pixels within the pixel and averaging (or blending) the obtained color values of the sub-pixels . In area sampling, the area of the polygon occupying a pixel is calculated and then the color value of the area ratio is calculated.

"converting the coverage pattern of the subpixels into a single antialiasing value that represents the positional relationship of the coverage as to neighboring pixels", Stroyan teaches in (col. 3,

lines 50-54)) that the region of interest is effectively extended to pixels that touch the primitive edge in any amount. This allows the invention to represent minority coverage of a pixel by an appropriate blending by a coverage percentage.

7. Claim 6.

As for claim 6, "wherein the single antialiasing value represents both coverage percentage and the coverage pattern", the step is inherent because both coverage (percentage and pattern) are sharing the same information.

8. Claim 7.

As for claim 7, "wherein the single antialiasing value comprises a map of the subpixels", Stroyan teaches in (col. 2, lines 51-60) that anti-aliasing methods are generally classified into a super-sampling method and an area sampling method. In the super-sampling method, the color value of a pixel is calculated by obtaining the color values of several sub-pixels within the pixel and averaging (or blending) the obtained color values of the sub-pixels . In area sampling, the area of the polygon occupying a pixel is calculated and then the color value of the area ratio is calculated.

9. Claim 8.

As for claim 8, "wherein the single antialiasing value has a plurality of bit associated therewith in a digital word of a length equal to the number of subpixels, with each bit having a value that represents whether the subpixel is covered", the step is inherent because all created value/s represented by digital word and the value is representing the subpixel.

10. Claim 9.

As for claim 9, "further comprising the step of filtering the edge pixel prior to a display operation, comprising the steps of: retrieving the edge pixel and the associated antialiasing value; determining the color of at least one adjacent pixel to the edge pixel; blending the color of the at least one adjacent pixel with the edge pixel as a function of the positional relationship of the subpixels in the supersampled edge pixel to provide an antialiased pixel; and storing the antialiased pixel in a frame buffer", see rejection of claims 3 and 5.

11. Claim 10.

As for claim 10, "wherein the step of determining comprises the step of determining the color of at least two adjacent pixels to the edge pixel, and the step of blending comprises blending the color of the at least two adjacent pixels with the edge pixel as a function of the positional relationship of the subpixels in the supersampled edge pixel to the at least two adjacent pixels to provide the antialiased pixel", see rejection of claims 5 and 7.

12. Claim 11.

As for claim 11, "wherein the step of creating the antialiasing value for the edge pixel is operable to further create a depth value in association with the antialiasing value, which depth value comprises the depth value of the subpixel that is covered by the foremost polygon", Stroyan teaches in (col. 2, lines 51-60) that anti-aliasing methods are generally classified into a super-sampling method and an area sampling method. In the super-sampling method, the color value of a pixel is calculated by obtaining the color values of several sub-pixels within the pixel and averaging (or blending) the obtained color values of the sub-pixels . In area sampling, the area of the polygon occupying a pixel is calculated and then the color value of the area ratio is calculated.

13. Claim 12.

As for claim 12, "A graphics engine for antialiasing edge pixels in a rendering operation, comprising: a rendering engine for determining coverage parameters associated with an edge pixel on an edge of a polygon being rendered that is stored in a first buffer; an antialiasing engine for creating an antialiasing value representing the relationship of the edge pixel to its surrounding neighbors as to the amount of color that is to be blended into the edge pixel of a color corresponding to that of its surrounding neighbors; and a second buffer for storing the antialiasing value in association with the edge pixel in said first buffer", Stroyan discloses and illustrates in (col. 8, lines 50-67) and Fig. 6, that is illustrating the top-level functional operation of a method for preserving color blending information, in accordance with one aspect of the present invention. In accordance with this method, a first step (step 202) may be to determine whether a 10 given pixel is an edge pixel (i.e., a pixel that borders a primitive edge). If not, then the pixel color may be directly written into the appropriate memory segment of the frame buffer (step 204). Thereafter, a coverage value of one (binary value "11111") may be written to the extra byte 162 of memory segment 160, corresponding to the current pixel (step 206). Thereafter, the method may proceed to the next pixel (step 208), and the foregoing steps may be repeated for each pixel of a rasterization. If a given pixel is determined to be an edge pixel, then the method may determine the coverage area for the current pixel (step 210). In this regard, the coverage area is the percentage of the pixel (containing the center point) that lies within the edge of the primitive.

Stroyan discloses in abstract that a system is provided having frame buffer circuitry uniquely configured for rendering an antialiased graphics scene. In accordance with one embodiment,

the frame buffer circuitry includes a first memory segment for storing color values associated with pixels, a second memory segment for storing alpha values associated with the pixels, a third memory segment for storing depth values associated with the pixels, and a fourth memory segment for storing anti-alias blending information associated with the pixels.

14. Claim 13.

As for claim 13, "wherein the created antialiasing value is a single antialiasing value represented as a digital word", see rejection of claim 12.

15. Claim 14.

As for claim 14, "wherein said antialiasing engine comprises: a supersampling engine for supersampling the edge pixel during rendering thereof to provide a plurality of subpixels, wherein each of the subpixels contains information as to coverage by the polygon; and a conversion device for converting the coverage pattern of the subpixels into a single antialiasing value that represents the positional relationship of the coverage as to neighboring pixels", Stroyan discloses in (col. 2, lines 52-60) that anti-aliasing methods are generally classified into a super-sampling method and an area sampling method. In the super-sampling method, the color value of a pixel is calculated by obtaining the color values of several sub-pixels within the pixel and averaging (or blending) the obtained color values of the sub-pixels . In area sampling, the area of the polygon occupying a pixel is calculated and then the color value of the area ratio is calculated. Stroyan teaches in (col. 3, lines 50-54)) that the region of interest is effectively extended to pixels that touch the primitive edge in any amount. This allows the invention to represent minority coverage of a pixel by an appropriate blending by a coverage percentage.

16. Claim 15.

As for claim 15, "wherein the single antialiasing value represents both coverage percentage and the coverage pattern", the step is inherent because both coverage (percentage and pattern) are sharing the same information.

17. Claim 16.

As for claim 16, "wherein the single antialiasing value comprises a map of the subpixels", Stroyan teaches in (col. 2, lines 51-60) that anti-aliasing methods are generally classified into a super-sampling method and an area sampling method. In the super-sampling method, the color value of a pixel is calculated by obtaining the color values of several sub-pixels within the pixel and averaging (or blending) the obtained color values of the sub-pixels . In area sampling, the area of the polygon occupying a pixel is calculated and then the color value of the area ratio is calculated.

18. Claim 17.

As for claim 17, " wherein the single antialiasing value has a plurality of bits associated therewith in a digital word of a length equal to the number of subpixels, with each bit having a value that represents whether the subpixel is covered", the step is inherent because all created value/s represented by digital word and the value is representing the subpixel.

19. Claim 18.

As for claim 18, "and further comprising a filter processing engine operable to filter the edge pixel prior to a display operation by: retrieving the edge pixel and the associated antialiasing value; determining the color of at least one adjacent pixel to the edge pixel; blending the color

of the at least one adjacent pixel with the edge pixel as a function of the positional relationship of the subpixels in the supersampled edge pixel to provide an antialiased pixel; and storing the antialiased pixel in a frame buffer", Stroyan discloses and illustrates in (col. 8, lines 50-67) and Fig. 6, that is illustrating the top-level functional operation of a method for preserving color blending information, in accordance with one aspect of the present invention. In accordance with this method, a first step (step 202) may be to determine whether a 10 given pixel is an edge pixel (i.e., a pixel that borders a primitive edge). If not, then the pixel color may be directly written into the appropriate memory segment of the frame buffer (step 204). Thereafter, a coverage value of one (binary value "11111") may be written to the extra byte 162 of memory segment 160, corresponding to the current pixel (step 206). Thereafter, the method may proceed to the next pixel (step 208), and the foregoing steps may be repeated for each pixel of a rasterization. If a given pixel is determined to be an edge pixel, then the method may determine the coverage area for the current pixel (step 210). In this regard, the coverage area is the percentage of the pixel (containing the center point) that lies within the edge of the primitive. Stroyan discloses in abstract that a system is provided having frame buffer circuitry uniquely configured for rendering an antialiased graphics scene. In accordance with one embodiment, the frame buffer circuitry includes a first memory segment for storing color values associated with pixels, a second memory segment for storing alpha values associated with the pixels, a third memory segment for storing depth values associated with the pixels, and a fourth memory segment for storing anti-alias blending information associated with the pixels. Stroyan discloses in (col. 2, lines 52-60) that anti-aliasing methods are generally classified into a super-sampling method and an area sampling method. In the super-sampling method, the

color value of a pixel is calculated by obtaining the color values of several sub-pixels within the pixel and averaging (or blending) the obtained color values of the sub-pixels . In area sampling, the area of the polygon occupying a pixel is calculated and then the color value of the area ratio is calculated.

20. Claim 19.

As for claim 19, "wherein said filter is operable to determine the color of at least two adjacent pixels to the edge pixel, and blend the color of the at least two adjacent pixels with the edge pixel as a function of the positional relationship of the subpixels in the supersampled edge pixel to the at least two adjacent pixels to provide the antialiased pixel", Stroyan teaches in (col. 2, lines 51-60) that anti-aliasing methods are generally classified into a super-sampling method and an area sampling method. In the super-sampling method, the color value of a pixel is calculated by obtaining the color values of several sub-pixels within the pixel and averaging (or blending) the obtained color values of the sub-pixels. In area sampling, the area of the polygon occupying a pixel is calculated and then the color value of the area ratio is calculated. And also see rejection of claim 3.

21. Claim 20.

As for claim 20, "wherein said antialiasing engine is operable to further create a depth value in association with the antialiasing value, which depth value comprises the depth value of the subpixel that is covered by the foremost polygon", Stroyan teaches in (col. 2, lines 51-60) that anti-aliasing methods are generally classified into a super-sampling method and an area sampling method. In the super-sampling method, the color value of a pixel is calculated by obtaining the color values of several sub-pixels within the pixel and averaging (or blending) the obtained color

values of the sub-pixels. In area sampling, the area of the polygon occupying a pixel is calculated and then the color value of the area ratio is calculated.

Drawings

This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

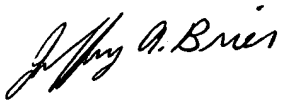
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Javid A Amini whose telephone number is 703-605-4248. The examiner can normally be reached on 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 703-305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-8705 for regular communications and 703-746-8705 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

Javid Amini
January 8, 2003



JEFFERY BRIER
PRIMARY EXAMINER